

PROJECT NUMBER : 1720
PROJECT TITLE : Analytical Microscopy
PROJECT LEADER : V. L. Baliga
PERIOD COVERED : December, 1990

I. REDUCED SIDESTREAM/FILTRATION/PAPER TECHNOLOGY (Thompson, Sanders)

A. **Objective:** Examine the ultrastructure of selected cigarette papers, paper additives, and filtration materials in support of the paper technology project.

B. **Results:**

Papers: Two 10-028 papers were examined, one from Kimberly Clark and one from Ecusta, and both were found to contain a small amount of wood fibers among the flax fibers. The wood fibers were identified by the presence of pits along the length of the fiber.¹

Powders: Five samples, A through E, of magnesium carbonates that were prepared from aqueous sol gel were examined. Sample A was water washed one time while samples B through E were water washed 3, 5, 7, and 9 times respectively. The morphologies were similar for all samples but the level of K and Cl dropped dramatically after the first washing and disappeared after the third washing.²

C. **References:**

1. Thompson, L, "Electron Microscope Analysis of Two 10-028 Papers," Memo to E.B. Sanders, November 15, 1990.
2. Sanders, K., "Examination of Particle Samples 7619-193-A through E," Memo to A. Kallianos, November 26, 1990.

II. NEW EXPANSION PROCESSES (Sanders, Watson, Baliga, Miser)

A. **Objective:** Provide analytical support to New Product Expansion.

B. **Results:** Four samples of expanded tobaccos were examined. No conclusions could be drawn from the cross-sectional measurements that were collected and the photographs that were obtained.¹ The cross sectional thickness measurements were only slightly in agreement with the SV measurements. Other methods were discussed to evaluate expanded tobaccos.²

A list of commercial facilities and universities that provide high resolution electron microscopy services was compiled. The majority of facilities was comparable in price at about \$2,000 per sample. These facilities are capable of providing high resolution imaging beyond the capabilities of our instrumentation (beyond 0.7 nanometers).³

C. References:

1. Sanders, K., "Comparison of Expanded Tobaccos," Memo to S. Ganeriwala, December 10, 1990.
2. Watson, D., "Comparison of Expanded Tobaccos," Memo to S. Ganeriwala, December 13, 1990.
3. Baliga, V., and Miser, D., "List of Companies that Provide Microscopy Services," Memo to D. Watson, December 11, 1990.

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